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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.  | CONFIRMATION NO. |
|---|-------------|----------------------|----------------------|------------------|
| 10/607,077  | 06/25/2003  | Matthew Ashby        | ASHBY/I DIV          | 1068             |
| 1473  | 7590        | 10/31/2006           | EXAMINER             |                  |
| FISH & NEAVE IP GROUP<br>ROPES & GRAY LLP<br>1251 AVENUE OF THE AMERICAS FL C3<br>NEW YORK, NY 10020-1105 |             |                      | STRZELECKA, TERESA E |                  |
|   |             |                      | ART UNIT             | PAPER NUMBER     |
|   |             |                      | 1637                 |                  |

DATE MAILED: 10/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/607,077             | ASHBY, MATTHEW      |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Teresa E. Strzelecka   | 1637                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 31 August 2006.
- 2a) This action is **FINAL**.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 45-56 is/are pending in the application.
- 4a) Of the above claim(s) 51-56 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 45-50 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

|   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                        | Paper No(s)/Mail Date: _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date: _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application |
|   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

1. This office action is in response to an amendment filed August 31, 2006. Claims 45-56 were previously pending, with claims 51-56 withdrawn from consideration. Applicant amended claims 45 and 46. Claims 45-50 will be examined.
2. Applicant's amendments did not overcome any of the previously presented rejections.

### *Response to Arguments*

3. Applicant's arguments filed August 31, 2006 have been fully considered but they are not persuasive.

A) Regarding claim interpretation, Applicant argues that:

- a) the term "PCR-based assay" should not be interpreted as an assay utilizing PCR in any step, in view of the description presented on page 27, lines 25-27,
- b) the terms "perfect correlation", "high degree of correlation" and "moderate degree of correlation" were defined on page 29, lines 8-14, in terms of r factors.

Regarding a), the paragraph cited by Applicant states:

"Species-specific probes that are identified from markers with a robust correlation to a sample parameter of interest can then be utilized as a diagnostic, or to prospect for the parameter of interest."

Therefore, there is nothing in this sentence about PCR. The following sentence, starting on line 27, reads:

"Such assays would preferably be PCR-based and would be highly sensitive, rapid and inexpensive".

There is no definition of what "PCR-based" means, therefore, the interpretation of the claim is the broadest reasonable interpretation.

Regarding b), Applicant did not define these terms, in a sense that there are no statements in the specification which read: “The perfect correlation means...”, or “The perfect correlation refers to...”, or “The perfect correlation is ...”. On page 29, starting on line 7, there is the following statement:

“The degree of correlation for r may be defined as follows:...”, therefore it is not a definition of a degree of correlation.

B) Regarding the rejection of claims 45-50 under 35 U.S.C. 102(b) as anticipated by Telang et al., Applicant argues the following:

- a) Telang et al. do not teach a diagnostic PCR-based assay;
- b) Telang et al. do not teach or suggest using species-specific probes, as described by Applicant in the specification;
- c) Telang et al. do not teach or suggest a step of identifying the species and species-specific probes to establish a correlation between marker and a sample parameter of interest.

Regarding a), the argument related to the term “PCR-based assay” was addressed above. Since Telang et al. teach obtaining hybridization probes by PCR, they teach a PCR-based assay.

Regarding b) and c), Applicant did not define what “species-specific” means. Further, the bacteria were found in the oil and gas formations, therefore their presence is correlated with the existence of such deposits.

The rejection is maintained.

#### ***Claim Interpretation***

4. The term “PCR-based assay” has not been defined by Applicant, therefore it is interpreted as any assay utilizing PCR in any step.

5. The term "parameter of interest is surface oil or natural gas deposit" is interpreted as any area containing oil or gas.

6. The terms "perfect correlation", a "high degree of correlation" and "moderate degree of correlation" have not been defined, therefore, the first two terms are treated as equivalent, and the third as any degree of correlation.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 45-50 are rejected under 35 U.S.C. 102(b) as being anticipated by Telang et al. (Can. J. Microbiol., vol. 40, pp. 955-964, 1994).

Claims 45 and 46 will be considered together in claim 45, since it is a species of claim 46.

Regarding claims 45 and 46, Telang et al. teach a method of identifying environmental parameters of interest by a method comprising:

- a. providing an environmental sample containing a population of interest (Telang et al. teach providing soil samples containing microbial populations (page 956, third and fifth paragraphs).);
- b. isolating genomic DNA from the environmental sample (Telang et al. teach isolating DNA from the soil samples (page 956, last paragraph; page 957, first paragraph).);
- c. performing a diagnostic PCR-based assay on the genomic DNA utilizing a plurality of species-specific probes to the nucleic acid marker sequence that shows a correlation to the parameter of interest (Telang et al. teach performing a hybridization assay with the following species-specific probes: [NiFe] hydrogenase gene probe, 16S rRNA probe and total genomic DNA

probes, all obtained from sulfur-reducing bacteria (SRB) which are found in oil and gas formations (page 955, first paragraph; page 956, second paragraph; page 957, paragraphs 2-8; page 958-960). Since the 16S rRNA probe was prepared by PCR (page 957, fifth paragraph), the hybridization assay was PCR-based).); and

d. inferring the presence of the parameter of interest based upon the presence of the nucleic acid marker sequence (Telang et al. teach inferring the presence of sulfur-reducing bacteria in samples using the [NiFe] probe and 16S rRNA (Table 2; page 962).).

Regarding claims 47 and 48, Telang et al. teach a high degree of correlation, or perfect correlation, between the hybridization to the [NiFe] and 16S rRNA probes and the presence of sulfur-reducing bacteria in soil after enrichment with lactate (Table 2; page 962, first and second paragraphs).

Regarding claim 49, Telang et al. teach moderate degree of correlation between the hybridization to the [NiFe] and 16S rRNA probes and the presence of sulfur-reducing bacteria in soil after enrichment with propionate (Table 2; page 962, first and second paragraphs).

Regarding claim 50, Telang et al. teach that sulfur-reducing bacteria are associated with oil and gas fields (page 955, first paragraph) and teach correlation between the presence of sulfur-reducing bacteria and oil presence in the samples (Table 2; page 962).

9. No claims are allowed.

### *Conclusion*

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the

mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Teresa E. Strzelecka whose telephone number is (571) 272-0789. The examiner can normally be reached on M-F (8:30-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion can be reached on (571) 272-0782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Teresa E Strzelecka  
Primary Examiner  
Art Unit 1637

*Teresa Strzelecka*  
(01/26/06)